

Certificate of Analysis



JX NIPPON OIL & ENERGY EUROPE LIMITED
Your Choice of Energy
4th Floor, 4 Moorgate, London EC2R 6DA, U.K.

Product : **ENEOS Premium Hyper 5W-40**
Batch Number : **PO1319396**

Analysis Description	Method	Unit	Minimum	Values	Maximum
Specific Gravity at 20°C	ASTM D4298	Kg/L	0,8465	0,8506	0,8545
Colour	ASTM D 1500	Visual	3,0	As Reference	5,0
I.R. Comparison				As Reference	
Kinematic Viscosity at 40°C	ASTM D-445	cSt		89,1	
Kinematic Viscosity at 100°C	ASTM D-445	cSt	14,1	14,7	14,9
Viscosity Index	ASTM D 2270		>165	173	
Cold Crank Simulator at -30 C	ASTM D -5293	mPa.s		5930	<6600
Flashpoint	ASTM D 92	°C	>200		
Pourpoint	ASTM D 97	°C	<-27		
Total Base Number	ASTM 2896	mgKOH/g	7,6		8,2
Sulphated Ash	ASTM D-874	wt%	0,60		1,00
Calcium	I.C.P.	wt%	0,10		0,26
Zinc	I.C.P.	wt%	0,08		0,10
Phosphorus	I.C.P.	wt%	0,07		0,09
Sulphur from additive	ASTM D 2622	wt%	0,00		0,05
Nitrogen	ASTM D 4629	wt%	0,08		0,10
Noack	ASTM D5800	wt%			<13

Quality Control Laboratory

Date: 11-10-13
Signature: **M.G.K Kelder**

From above results this product meet the performance level described in the product information

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Product : **ENEOS Premium Hyper 5W-40**

Batch Number : **PO1319397**

Analysis Description	Method	Unit	Minimum	Values	Maximum
Specific Gravity at 20°C	ASTM D4298	Kg/L	0,8465	0,8467	0,8545
Colour	ASTM D 1500	Visual	3,0	As Reference	5,0
I.R. Comparison				As Reference	
Kinematic Viscosity at 40°C	ASTM D-445	cSt		84,7	
Kinematic Viscosity at 100°C	ASTM D-445	cSt	14,1	14,5	14,9
Viscosity Index	ASTM D 2270		>165	179	
Cold Crank Simulator at -30 C	ASTM D -5293	mPa.s		5400	<6600
Flashpoint	ASTM D 92	°C	>200		
Pourpoint	ASTM D 97	°C	<-27		
Total Base Number	ASTM 2896	mgKOH/g	7,6		8,2
Sulphated Ash	ASTM D-874	wt%	0,80		1,00
Calcium	I.C.P.	wt%	0,10		0,26
Zinc	I.C.P.	wt%	0,08		0,10
Phosphorus	I.C.P.	wt%	0,07		0,09
Sulphur from additive	ASTM D 2822	wt%	0,00		0,05
Nitrogen	ASTM D 4629	wt%	0,08		0,10
Noack	ASTM D5800	wt%			<13

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Analysis Description	Method	Unit	Minimum	Values	Maximum
Specific Gravity at 20°C :	ASTM D4298	Kg/L	0,8465	0,8506	0,8545
Colour :	ASTM D 1500	Visual	3,0	As Reference	5,0
I.R. Comparison :				As Reference	
Kinematic Viscosity at 40°C :	ASTM D-445	cSt		89,1	
Kinematic Viscosity at 100°C :	ASTM D-445	cSt	14,1	14,7	14,9
Viscosity Index :	ASTM D 2270		>165	173	
Cold Crank Simulator at -30 C :	ASTM D -5293	mPa.s		5930	<6600
Flashpoint :	ASTM D 92	°C	>200		
Pourpoint :	ASTM D 97	°C	<-27		
Total Base Number :	ASTM 2896	mgKOH/g	7,6		8,2
Sulphated Ash :	ASTM D-874	wt%	0,60		1,00
Calcium :	I.C.P.	wt%	0,10		0,26
Zinc :	I.C.P.	wt%	0,08		0,10
Phosphorus :	I.C.P.	wt%	0,07		0,09
Sulphur from additive :	ASTM D 2622	wt%	0,00		0,05
Nitrogen :	ASTM D 4629	wt%	0,08		0,10
Noack :	ASTM D5800	wt%			<13

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Product : **ENEOS Premium Hyper R1 5W-30**
Batch Number : **PO1319400**

Analysis Description	Method	Unit	Minimum	Values	Maximum
Density at 20°C	ASTM D4298	gm/cm ³	0,8440	0,8513	0,8520
Colour	ASTM D 1500	Visual		As Reference	
I.R. Comparison				As Reference	
Kinematic Viscosity at 40°C	ASTM D-445	cSt		70,6	
Kinematic Viscosity at 100°C	ASTM D-445	cSt	9,3	12,3	12,5
Viscosity Index	ASTM D 2270		>150	174	
Cold Cranking Simulator viscosity at -30°C	ASTM D -5293	mPa.s		6560	<6600
MRV viscosity at -35°C	ASTM D4684	mPa.s			<60000
Flashpoint	ASTM D 92	°C	>200		
Pourpoint	ASTM D 97	°C	<-33		
Total Base Number	ASTM 2896	mgKOH/g	6,5		7,4
Sulphated Ash	ASTM D-874	wt%	0,4		0,9
Calcium	ASTM D 4951	wt%	0,1		0,2
Zinc	ASTM D 4951	wt%	0,04		0,08
Phosphorus	ASTM D 4951	wt%	0,02		0,09
Sulphur content	ASTM D 2622	wt%	0,1		0,20
Nitrogen	ASTM D 4629	wt%			0,1
Noack	ASTM D5800	wt%			<11
Foaming Sequence I	ASTM D892	ml/ml			10/0
Foaming Sequence II	ASTM D892	ml/ml			50/0
Foaming Sequence III	ASTM D892	ml/ml			10/0

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Product : **ENEOS Premium Hyper R1 5W-30**
Batch Number : **PO1319399**

Analysis Description	Method	Unit	Minimum	Values	Maximum
Density at 20°C	ASTM D4298	gm/cm ³	0,8440	0,8513	0,8520
Colour	ASTM D 1500	Visual		As Reference	
I.R. Comparison				As Reference	
Kinematic Viscosity at 40°C	ASTM D-445	cSt		70,6	
Kinematic Viscosity at 100°C	ASTM D-445	cSt	9,3	12,3	12,5
Viscosity Index	ASTM D 2270		>150	174	
Cold Cranking Simulator viscosity at -30°C	ASTM D -5293	mPa.s		6560	<6600
MRV viscosity at -35°C	ASTM D4684	mPa.s			<60000
Flashpoint	ASTM D 92	°C	>200		
Pourpoint	ASTM D 97	°C	<-33		
Total Base Number	ASTM 2896	mgKOH/g	6,5		7,4
Sulphated Ash	ASTM D-874	wt%	0,4		0,9
Calcium	ASTM D 4951	wt%	0,1		0,2
Zinc	ASTM D 4951	wt%	0,04		0,08
Phosphorus	ASTM D 4951	wt%	0,02		0,09
Sulphur content	ASTM D 2622	wt%	0,1		0,20
Nitrogen	ASTM D 4629	wt%			0,1
Noack	ASTM D5800	wt%			<11
Foaming Sequence I	ASTM D892	ml/ml			10/0
Foaming Sequence II	ASTM D892	ml/ml			50/0
Foaming Sequence III	ASTM D892	ml/ml			10/0

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Product : **ENEOS Premium 10W-40**
 Batch Number : **PO1319401**

Analysis Description	Method	Unit	Minimum	Values	Maximum
Specific Gravity at 20°C	ASTM D4298	Kg/L	0,8593	0,8612	0,8673
Colour	ASTM D 1500	Visual	2,5	As Reference	4,5
I.R. Comparison				As Reference	
Kinematic Viscosity at 40°C	ASTM D-445	cSt		99,7	
Kinematic Viscosity at 100°C	ASTM D-445	cSt	14,3	14,9	15,1
Viscosity Index	ASTM D 2270		>145	156	
Cold Crank Simulator at -25 C	ASTM D -5293	mPa.s		6210	<7000
Flashpoint	ASTM D 92	°C	>210		
Pourpoint	ASTM D 97	°C	<-36		
Total Base Number	ASTM 2896	mgKOH/g	8,00		8,80
Sulphated Ash	ASTM D-874	wt%	0,84		1,24
Calcium	I.C.P.	wt%	0,21		0,28
Zinc	I.C.P.	wt%	0,08		0,12
Phosphorus	I.C.P.	wt%	0,08		0,10
Sulphur from additive	ASTM D 2622	wt%	0,49		0,64
Nitrogen	ASTM D 4629	wt%	0,06		0,08
Noack	ASTM D5800	wt%			<13

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Product : **ENEOS Premium 10W-40**
 Batch Number : PO1319405

Analysis Description	Method	Unit	Minimum	Values	Maximum
Specific Gravity at 20°C	ASTM D4298	Kg/L	0,8593	0,8612	0,8673
Colour	ASTM D 1500	Visual	2,5	As Reference	4,5
I.R. Comparison				As Reference	
Kinematic Viscosity at 40°C	ASTM D-445	cSt		99,7	
Kinematic Viscosity at 100°C	ASTM D-445	cSt	14,3	14,9	15,1
Viscosity Index	ASTM D 2270		>145	156	
Cold Crank Simulator at -25 C	ASTM D -5293	mPa.s		6210	<7000
Flashpoint	ASTM D 92	°C	>210		
Pourpoint	ASTM D 97	°C	<-36		
Total Base Number	ASTM 2896	mgKOH/g	8,00		8,80
Sulphated Ash	ASTM D-874	wt%	0,84		1,24
Calcium	I.C.P.	wt%	0,21		0,28
Zinc	I.C.P.	wt%	0,08		0,12
Phosphorus	I.C.P.	wt%	0,08		0,10
Sulphur from additive	ASTM D 2622	wt%	0,49		0,64
Nitrogen	ASTM D 4629	wt%	0,06		0,08
Noack	ASTM D5800	wt%			<13

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Product : **ENEOS Premium 10W-40**
Batch Number : PO1319404

Analysis Description	Method	Unit	Minimum	Values	Maximum
Specific Gravity at 20°C	ASTM D4298	Kg/L	0,8593	0,8630	0,8673
Colour	ASTM D 1500	Visual	2,5	As Reference	4,5
I.R. Comparison				As Reference	
Kinematic Viscosity at 40°C	ASTM D-445	cSt		101,2	
Kinematic Viscosity at 100°C	ASTM D-445	cSt	14,3	14,8	15,1
Viscosity Index	ASTM D 2270		>145	152	
Cold Crank Simulator at -25 C	ASTM D -5293	mPa.s		6380	<7000
Flashpoint	ASTM D 92	°C	>210		
Pourpoint	ASTM D 97	°C	<-36		
Total Base Number	ASTM 2896	mgKOH/g	8,00		8,80
Sulphated Ash	ASTM D-874	wt%	0,84		1,24
Calcium	I.C.P.	wt%	0,21		0,28
Zinc	I.C.P.	wt%	0,08		0,12
Phosphorus	I.C.P.	wt%	0,08		0,10
Sulphur from additive	ASTM D 2622	wt%	0,49		0,64
Nitrogen	ASTM D 4629	wt%	0,06		0,08
Noack	ASTM D5800	wt%			<13

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Product : **ENEOS Premium 10W-40**
 Batch Number : **PO1319403**

Analysis Description	Method	Unit	Minimum	Values	Maximum
Specific Gravity at 20°C	ASTM D4298	Kg/L	0,8593	0,8630	0,8673
Colour	ASTM D 1500	Visual	2,5	As Reference	4,5
I.R. Comparison				As Reference	
Kinematic Viscosity at 40°C	ASTM D-445	cSt		101,2	
Kinematic Viscosity at 100°C	ASTM D-445	cSt	14,3	14,8	15,1
Viscosity Index	ASTM D 2270		>145	152	
Cold Crank Simulator at -25 C	ASTM D -5293	mPa.s		6380	<7000
Flashpoint	ASTM D 92	°C	>210		
Pourpoint	ASTM D 97	°C	<-36		
Total Base Number	ASTM 2896	mgKOH/g	8,00		8,80
Sulphated Ash	ASTM D-874	wt%	0,84		1,24
Calcium	I.C.P.	wt%	0,21		0,28
Zinc	I.C.P.	wt%	0,08		0,12
Phosphorus	I.C.P.	wt%	0,08		0,10
Sulphur from additive	ASTM D 2622	wt%	0,49		0,64
Nitrogen	ASTM D 4629	wt%	0,06		0,08
Noack	ASTM D5800	wt%			<13

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Product : **ENEOS Premium 10W-40**
 Batch Number : **PO1319402**

Analysis Description	Method	Unit	Minimum	Values	Maximum
Specific Gravity at 20°C	ASTM D4298	Kg/L	0,8593	0,8614	0,8673
Colour	ASTM D 1500	Visual	2,5	As Reference	4,5
I.R. Comparison				As Reference	
Kinematic Viscosity at 40°C	ASTM D-445	cSt		99,1	
Kinematic Viscosity at 100°C	ASTM D-445	cSt	14,3	14,9	15,1
Viscosity Index	ASTM D 2270		>145	157	
Cold Crank Simulator at -25 C	ASTM D -5293	mPa.s		6510	<7000
Flashpoint	ASTM D 92	°C	>210		
Pourpoint	ASTM D 97	°C	<-36		
Total Base Number	ASTM 2896	mgKOH/g	8,00		8,80
Sulphated Ash	ASTM D-874	wt%	0,84		1,24
Calcium	I.C.P.	wt%	0,21		0,28
Zinc	I.C.P.	wt%	0,08		0,12
Phosphorus	I.C.P.	wt%	0,08		0,10
Sulphur from additive	ASTM D 2622	wt%	0,49		0,64
Nitrogen	ASTM D 4629	wt%	0,06		0,08
Noack	ASTM D5800	wt%			<13

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Product : **ENEOS Diesel Grand 10W-40**
 Batch Number : **PO1319406**

Analysis Description	Method	Unit	Minimum	Values	Maximum
Specific Gravity at 20°C :	ASTM D4298	Kg/L	0,8594	0,8620	0,8674
Colour :	ASTM D 1500	Visual	2,5	As Reference	4,5
I.R. Comparison :				As Reference	
Kinematic Viscosity at 40°C :	ASTM D-445	cSt		97,6	
Kinematic Viscosity at 100°C :	ASTM D-445	cSt	14,7	14,9	15,5
Viscosity Index :	ASTM D 2270		>155	160	
Cold Crank Simulator at -25 C :	ASTM D -5293	mPa.s		4870	<7000
Flashpoint :	ASTM D 92	°C	>210		
Pourpoint :	ASTM D 97	°C	<-36		
Total Base Number :	ASTM 2896	mgKOH/g	9,00		11,00
Sulphated Ash :	ASTM D-874	wt%	1,2		1,8
Calcium :	I.C.P.	wt%	0,31		0,43
Zinc :	I.C.P.	wt%	0,08		0,12
Phosphorus :	I.C.P.	wt%	0,09		0,13
Sulphur from additive :	ASTM D 2622	wt%	0,49		0,64
Nitrogen :	ASTM D 4629	wt%	0,06		0,08
Noack :	ASTM D5800	wt%			<13

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Product : **ENEOS Super Plus 15W-40**
 Batch Number : PO1319407

Analysis Description	Method	Unit	Minimum	Values	Maximum
Specific Gravity at 20°C	: ASTM D4298	Kg/L	0,8660	0,8689	0,8740
Colour	: ASTM D 1500	Visual	2,5	As Reference	4,5
I.R. Comparison	:			As Reference	
Kinematic Viscosity at 40°C	: ASTM D-445	cSt		108,7	
Kinematic Viscosity at 100°C	: ASTM D-445	cSt	14,5	14,9	15,3
Viscosity Index	: ASTM D 2270		>130	142	
Cold Crank Simulator at -20 C	: ASTM D -5293	mPa.s		5810	<7000
Flashpoint	: ASTM D 92	°C	>200		
Pourpoint	: ASTM D 97	°C	<-30		
Total Base Number	: ASTM 2896	mgKOH/g	8,30		9,10
Sulphated Ash	: ASTM D-874	wt%	1,00		1,40
Calcium	: I.C.P.	wt%	0,28		0,34
Zinc	: I.C.P.	wt%	0,08		0,12
Phosphorus	: I.C.P.	wt%	0,08		0,12
Sulphur from additive	: ASTM D 2622	wt%	0,00		0,30
Nitrogen	: ASTM D 4629	wt%	0,05		0,09
Noack	: ASTM D5800	wt%			<13

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Product : **ENEOS Premium Multi 15W-40**
Batch Number : **PO1319408**

Analysis Description	Method	Unit	Minimum	Values	Maximum
Specific Gravity at 20°C	ASTM D4298	Kg/L	0,8686	0,8710	0,8766
Colour	ASTM D 1500	Visual	2,5	As Reference	4,5
I.R. Comparison				As Reference	
Kinematic Viscosity at 40°C	ASTM D-445	cSt		101,4	
Kinematic Viscosity at 100°C	ASTM D-445	cSt	13,8	14,2	14,6
Viscosity Index	ASTM D 2270		>125	143	
Cold Crank Simulator at -20 C	ASTM D -5293	mPa.s		5010	<7000
Flashpoint	ASTM D 92	°C	>200		
Pourpoint	ASTM D 97	°C	<-36		
Total Base Number	ASTM 2896	mgKOH/g	10,4		11,2
Sulphated Ash	ASTM D-874	wt%	1,10		1,50
Calcium	I.C.P.	wt%	0,29		0,38
Zinc	I.C.P.	wt%	0,10		0,13
Phosphorus	I.C.P.	wt%	0,10		0,12
Sulphur from additive	ASTM D 2622	wt%	0,30		0,50
Nitrogen	ASTM D 4629	wt%	0,08		0,10
Noack	ASTM D5800	wt%			<13

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Product : **ENEOS Premlum ATF DIII**
 Batch Number : PO1319409

Analysis Description	Method	Unit	Minimum	Values	Maximum
Specific Gravity at 20°C	: ASTM D 4298	Kg/L	0,8549	0,8597	0,8629
Colour	: ASTM D 1500	Visual		As Reference	
I.R. Comparison	:			As Reference	
Kinematic Viscosity at 40°C	: ASTM D-445	cSt		38,1	
Kinematic Viscosity at 100°C	: ASTM D-445	cSt	6,9	7,6	7,9
Viscosity Index	: ASTM D 2270		>150	173	
Flashpoint	: ASTM D 92	°C	>180		
Pourpoint	: ASTM D 97	°C	<-45		
Total Acid Number	: ASTM D664	mgKOH/g	0,00		0,02
Total Base Number	: ASTM 2896	mgKOH/g	0,00		0,02
Calcium	: I.C.P.	wt%	0,01		0,03
Zinc	: I.C.P.	wt%	0,00		0,02
Phosphorus	: I.C.P.	wt%	0,00		0,04
Sulphur from additive	: ASTM D 2622	wt%	0,20		0,26
Nitrogen	: ASTM D 4629	wt%	0,09		0,19
Noack	: ASTM D 5800	wt%			<45

Quality Control Laboratory

Date: 11-10-13
 Signature: D.Wolf

From above results this product meet the performance level described in the product information

This certificate has been prepared with care and to the best of our knowledge as part of the quality assurance system. However it does not relieve the customers of their obligation to inspect the receipt or establish any warranties to third parties, to whom it might be passed on. No additional warranty of any kind, expressed or implied, is linked hereto.

Certificate of Analysis



JX NIPPON OIL & ENERGY EUROPE LIMITED
 Your Choice of Energy
 4th Floor, 4 Moorgate, London EC2R 6DA, U.K.

Product : ENEOS Premium Multi Gear 75W-90
Batch Number : PO 1319410

Analysis Description	Method	Unit	Minimum	Values	Maximum
Specific Gravity at 20°C	: ASTM D4298	Kg/L	0,8644	0,8680	0,8721
Colour	: ASTM D 1500	Visual	0,2	As Reference	2,0
I.R. Comparison	:			As Reference	
Kinematic Viscosity at 40°C	: ASTM D-445	cSt		85,4	
Kinematic Viscosity at 100°C	: ASTM D-445	cSt	14,7	14,8	15,5
Viscosity Index	: ASTM D 2270		>180	183	
Flashpoint	: ASTM D 92	°C	>170		
Pourpoint	: ASTM D 97	°C	<-42		
Total Base Number	: ASTM 2896	mgKOH/g	1,75		2,35
Sulphated Ash	: ASTM D-874	wt%	0,96		1,60
Calcium	: I.C.P.	wt%	0,00		<0,03
Zinc	: I.C.P.	wt%	0,00		<0,03
Phosphorus	: I.C.P.	wt%	0,04		0,08
Sulphur from additive	: ASTM D 2622	wt%	1,77		2,37
Nitrogen	: ASTM D 4629	wt%	0,02		0,06
Noack	: ASTM D5800	wt%			<25

Quality Control Laboratory

Date: 11-10-13
 Signature: D.Wolff

From above results this product meet the performance level described in the product information

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Certificate of Analysis



JX NIPPON OIL & ENERGY EUROPE LIMITED
 Your Choice of Energy
 4th Floor, 4 Moorgate, London EC2R 6DA, U.K.

Product : **ENEOS Super Multi Gear 80W-90**
 Batch Number : PO1319411

Analysis Description	Method	Unit	Minimum	Values	Maximum
Specific Gravity at 20°C	: ASTM D4298	Kg/L	0,8793	0,8805	0,8873
Colour	: ASTM D 1500	Visual	0,2	As Reference	2,0
I.R. Comparison	:			As Reference	
Kinematic Viscosity at 40°C	: ASTM D-445	cSt		127,7	
Kinematic Viscosity at 100°C	: ASTM D-445	cSt	13,7	13,8	14,5
Viscosity Index	: ASTM D 2270		>100	105	
Flashpoint	: ASTM D 92	°C	>170		
Pourpoint	: ASTM D 97	°C	<-27		
Total Base Number	: ASTM 2896	mgKOH/g	0,00		0,03
Sulphated Ash	: ASTM D-874	wt%	0,00		0,03
Calcium	: I.C.P.	wt%	0,00		0,03
Zinc	: I.C.P.	wt%	0,00		0,03
Phosphorus	: I.C.P.	wt%	0,04		0,08
Sulphur from additive	: ASTM D 2622	wt%	1,50		1,70
Nitrogen	: ASTM D 4629	wt%	0,00		0,03
Noack	: ASTM D5800	wt%			<10

Quality Control Laboratory

Date: 11-10-13
 Signature: D.Wolff

From above results this product meet the performance level described in the product information

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Certificate of Analysis



JX NIPPON OIL & ENERGY EUROPE LIMITED
Your Choice of Energy
4th Floor, 4 Moorgate, London EC2R 6DA, U.K.

Product : **Hydraulic 46**
Batch Number : PO1319412

Analysis Description	Method	Unit	Minimum	Values	Maximum
Specific Gravity at 20°C	: ASTM D4298	Kg/L	0,8584	0,8623	0,8664
Colour	: ASTM D 1500	Visual	2,5	As Reference	4,5
I.R. Comparison	:			As Reference	
Kinematic Viscosity at 40°C	: ASTM D-445	cSt	43,1	47,5	47,7
Kinematic Viscosity at 100°C	: ASTM D-445	cSt		7,4	
Viscosity Index	: ASTM D 2270		>100	118	
Flashpoint	: ASTM D 92	°C	>200		
Pourpoint	: ASTM D 97	°C	<-20		
Total Base Number	: ASTM 2896	mgKOH/g	0,00		0,50
Sulphated Ash	: ASTM D-874	wt%	0,00		0,50
Calcium	: I.C.P.	wt%	0,00		0,30
Zinc	: I.C.P.	wt%	0,10		0,13
Phosphorus	: I.C.P.	wt%	0,08		0,12
Sulphur from additive	: ASTM D 2622	wt%	0,63		0,84
Nitrogen	: ASTM D 4629	wt%	0,00		0,10
Noack	: ASTM D5800	wt%			<13

Quality Control Laboratory

Date: 11-10-13

Signature: S.Nieland

From above results this product meet the performance level described in the product information

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